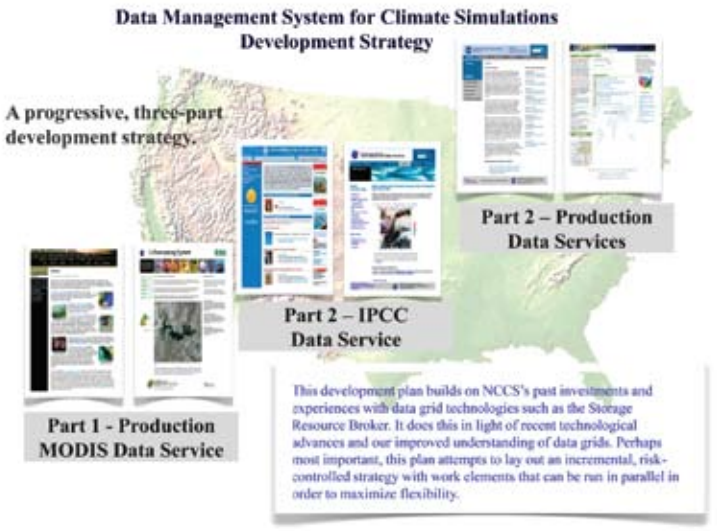
Computing Technology

NCCS Data Management System for Climate Simulations

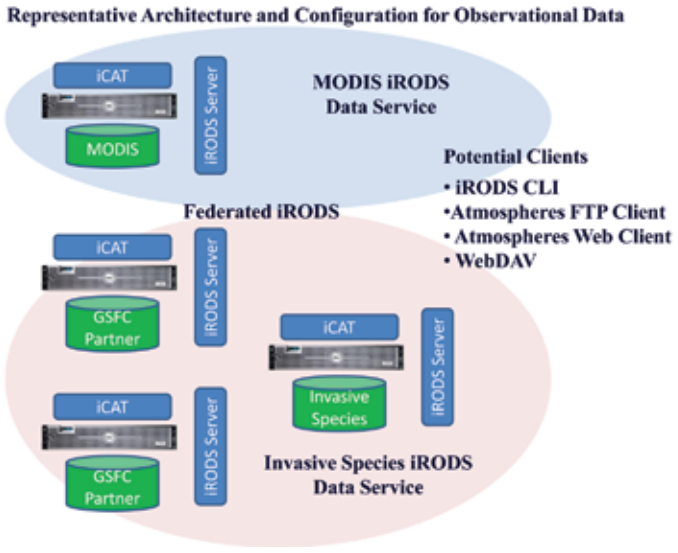
Now more than ever, Earth scientists have unprecedented levels of observational and model data to use as initial conditions and input into global climate models. The applications themselves are being run at higher resolution than ever before and generating massive amounts of data. Adoption of data grid services will directly support how scientists find, assimilate, generate, and publish model output.

The NASA Center for Computational Sciences (NCCS) at Goddard Space Flight Center is laying the foundation to migrate into a data grid paradigm for scientific data services. This effort will provide a framework for the integrated delivery of data from both Earth observations and climate simulations, thereby broadening the accessibility and usability of archived and newly available data. Over the next year, NCCS will establish a Data Management System (DMS) based on the installation and refinement of the integrated Rule-Oriented Data System (iRODS) data grid software.

The DMS will help application scientists work in an ever-increasing distributed data space where datasets are no longer local to compute engines and are much too difficult to find and use. The adoption of metadata and data grid services will take NCCS and its user community toward the goals of creating data-as-a-service.



NCCS will take a progressive, three-part development strategy to create a data management system for climate simulations.



NCCS will begin by federating existing observational datasets and creating new client methods to access these datasets using an integrated Rule-Oriented Data System (iRODS).

http://www.nccs.nasa.gov/

Daniel Duffy, NASA Goddard Space Flight Center
Daniel.Q.Duffy@nasa.gov